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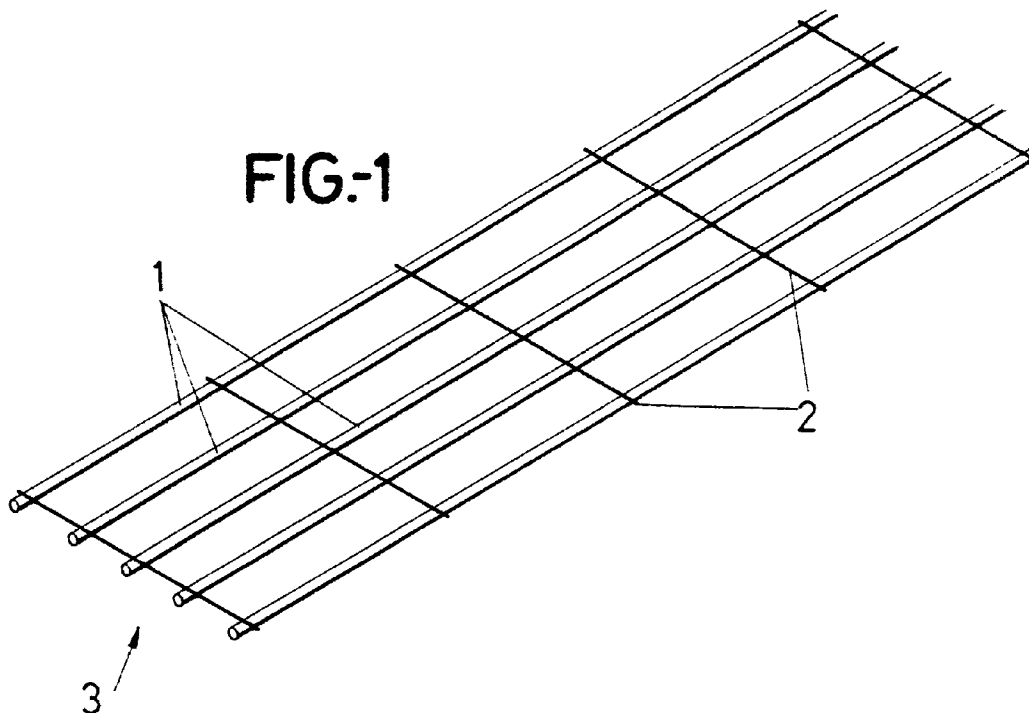
(54) Prefabricated mesh for structural members

(57) It proves to be particularly suitable for the reinforcement of hollow-slab structural members, and its characteristics are centred on the fact that all the carrying bars (1) which contribute to it are oriented in the same direction, in fact in the longitudinal direction, being equally spaced appropriately with the assistance of transverse rods (2) of much reduced thickness and very widely spaced from each other, these rods (2) having no carrying function but simply constituting connecting

links between the carrying bars (1) in order to form a mesh panel (3) whose width is limited by the transport standards (2.20 metres), while its length may reach as much as 12.00 metres.

These meshes are coupled laterally with no overlap being required in that direction, and when a bidirectional reinforcement is needed for the structural member above a first layer of panels or meshes, a second layer is formed in which the carrying bars (1) are perpendicular to the carrying bars of the first layer.

FIG.-1



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Description

SUBJECT OF THE INVENTION

The present invention relates to a prefabricated mesh, of the type used in the reinforcement of structural members, which proves to be particularly suitable for the reinforcement of "hollow-slab" structural members.

BACKGROUND OF THE INVENTION

Many types of flat structural members are currently used in construction; two important groups should be mentioned, some regarded as structural members with girders and others as structural members without girders; in fact, among the structural members with girders, are those known as "partially prefabricated unidirectional structural members" as well as the "ribbed unidirectional structural members" and the "unidirectional, lightened-slab structural members", also known as honey-combed structural members.

The abovementioned structural members with girders in all cases transmit the loads to the girders and from them to the corresponding pillars; in fact, in some cases, they are partially prefabricated and in others they are constructed totally "in situ", with the special feature that they all bend basically in one direction.

As for the structural members without girders, mention may be made of those known as "hollow-slab structural members" and "lattice-type structural members"; in fact structural members of this type are constructed totally "in situ" and the loads are transmitted directly to the pillars, although they can also be transmitted to the girders.

In this case the structural members bend in two directions and the reinforcement is formed with steel bars or bidirectional meshes.

These bidirectional meshes, which may, and in fact on many occasions do, constitute prefabricated elements, are structured on the basis of carrying bars arranged both in the longitudinal and in the transverse direction, their length being variable, of the order of 6.00 metres, while their width is limited by the transport width, 2.20 metres.

However, these bidirectional prefabricated meshes exhibit the fundamental drawback that, when used as the reinforcement of slabs, overlaps have to be formed in the longitudinal and transverse directions, the first approximately every 5.50 metres and the second every 1.70 metres; it is also not possible to install the positive or negative strengthening in the corresponding layer.

Obviously, layers of triple or even quadruple bars are defined in these overlap regions, which cause the structural member to lose usable depth.

To avoid this happening, it is necessary to fabricate different types of mesh panels known as "saving mesh", which detracts from its industrial character; it is also not possible to install the positive or negative strengthening

in the corresponding layer.

DESCRIPTION OF THE INVENTION

The prefabricated mesh which the invention proposes provides a fully satisfactory solution to the problem set out above, based on a unidirectional structure, in such a way that only carrying bars arranged in the longitudinal direction contribute to the panel formed by the mesh, with the help of very fine, widely spaced bars, which have no carrying role but the exclusive function of serving as connecting links for the first bars, constituting the panel in question.

This means, on the one hand, that the panel formed with a prefabricated mesh of this type is considerably lighter, lacking transverse carrying bars, because of which it can maintain the normal length of 6.00 metres and can even reach 12.00 metres, proving to be more manoeuvrable in all cases. On the other hand, it makes it possible for a structural member to be reinforced exclusively in one direction, when that is deemed to be suitable, or in two perpendicular directions; in this latter case, obviously, by means of the use of two groups or planes of panels, arranged perpendicularly to each other, that is to say with one group of panels placed along the "X" axis covering the entire surface of the structural member, and a second plane of panels placed along the "Y" direction.

This means that no overlap is necessary between mesh panels in the transverse direction, since these panels will be interlaced by those of the second group, perpendicular to the first one. Moreover, the longitudinal overlaps are reduced in number, the particular structural configuration of the panels allowing them a longer length and consequently a longer distance between overlaps, reducing the number of overlaps to a third or less by comparison with those necessary with a conventional bidirectional mesh.

Moreover, and given that the overlaps are formed between panels in which only one layer of carrying bars is involved, only two layers are present in the overlap regions, that is to say two superimposed carrying bars at most, which very considerably reduces the thickness taken up by the reinforcement as a whole.

Finally, the assembly system for installing firstly the mesh panels of the "X" direction, makes it possible to insert positive or negative strengtheners into this layer before installing the second mesh, orthogonal to the first one, that is to say in the "Y" direction, thus making use of the full usable design thickness of the structural member.

DESCRIPTION OF THE DRAWINGS

In order to supplement the description which is being given and with the aim of helping towards a better understanding of the characteristics of the invention, in accordance with a preferred example of a practical em-

bodiment thereof, the said description is accompanied, as an integral part, by a set of drawings in which, as an illustration but not a limitation, the following has been represented:

Figure 1.- Shows, in a diagrammatic representation in perspective, a prefabricated mesh for structural members produced in accordance with the object of the present invention.

Figure 2.- Shows, also according to a perspective view, a plurality of meshes like that of the previous figure, represented diagrammatically as simple rectangles and arranged in two layers to form the bidirectional reinforcement of a structural member.

Figure 3.- Shows a diagrammatic representation in plan view of part of the reinforcement of a structural member produced with the mesh of the previous figures, in which the overlap regions between meshes have been represented as broken lines.

PREFERRED EMBODIMENT OF THE INVENTION

From these figures, and more particularly from Figure 1, it can be seen how the prefabricated mesh for structural members which the invention proposes is constructed on the basis of a single bundle of parallel and uniformly distributed carrying bars (1), with a cross section and a spacing which are appropriate for the strength necessary in the reinforcement, and a length which may reach as much as 12.00 metres, these carrying bars (1) being fastened together, in order to form the mesh or panel, by means of very fine bars (2), transverse with respect to the previous ones and widely spaced from each other, in fact with a minimum diameter and a maximum spacing since these bars (2), or rather rods, have no carrying function but merely the function of a connecting link between the carrying bars (1), so that the latter take up and maintain the appropriate relative positioning.

In this way a mesh panel is obtained which has been referenced overall as (3), whose width is restricted by the transport standard, consequently being 2.20 metres, while its length can reach as much as the above-mentioned 12.00 metres.

With these panels (3), as has already been said, it is possible to reinforce a structural member exclusively in one direction, for example in the "X" direction, or else in two directions, that is to say in the "X" and "Y" directions, as required in each case, two layers of superimposed panels being formed in this latter case, with the panels of one layer oriented in one direction and those of the other layer in the perpendicular direction, as can be seen particularly in Figure 2.

This means that, as opposed to the overlaps with bidirectional prefabricated mesh, which, in the longitudinal direction, occur every 5.50 metres at most and, in the transverse direction 1.70 metres, with the mesh of the invention, in the longitudinal direction as well as in the transverse directions, the overlap occurs every 5.50

metres, possibly reaching as much as 11.50 metres, such that the number of overlaps is drastically reduced, and at the same time the number of layers of carrying bars which are placed in the overlap regions (4), represented by means of broken lines in Figure 3, is also reduced.

Claims

1. Prefabricated mesh for structural members, which, being particularly suitable for "hollow-slab" structural members and being of the type which incorporate a plurality of carrying bars, with cross section and spacing appropriate to the requirements specified for each structural member, is characterized in that the said carrying bars (1) are all parallel to each other and are oriented in the longitudinal direction in the context of the panel formed by the said mesh, provision being made for the said carrying bars (1) to be mutually stabilized in the context of the panel with the assistance of very fine and very widely spaced transverse rods (2), which act exclusively as connecting links between the carrying bars.
2. Prefabricated mesh for structural members, according to Claim 1, characterized in that while its width is limited by the transport standards to a magnitude of the order of 2.20 metres, its length, which is variable, may reach as much as 12.00 metres.
3. Prefabricated mesh for structural members, according to the preceding claims, characterized in that two superimposed layers of panels, one with the carrying bars oriented along the "X" axis, and the other along the "Y" axis, participate in the bidirectional reinforcement of a structural member.

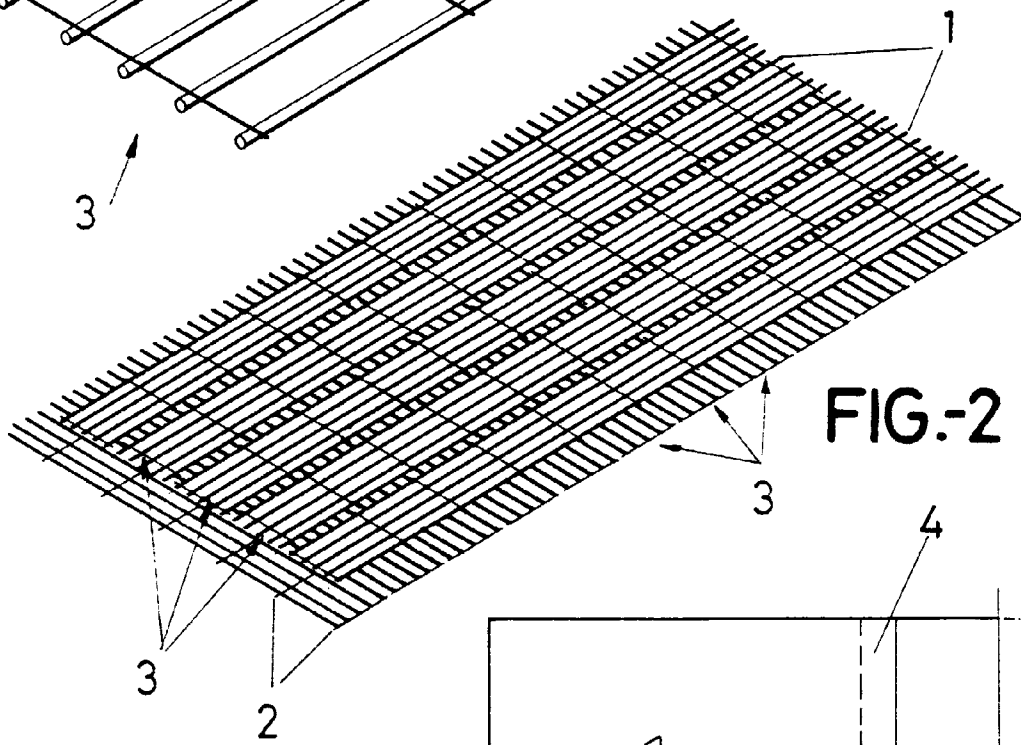
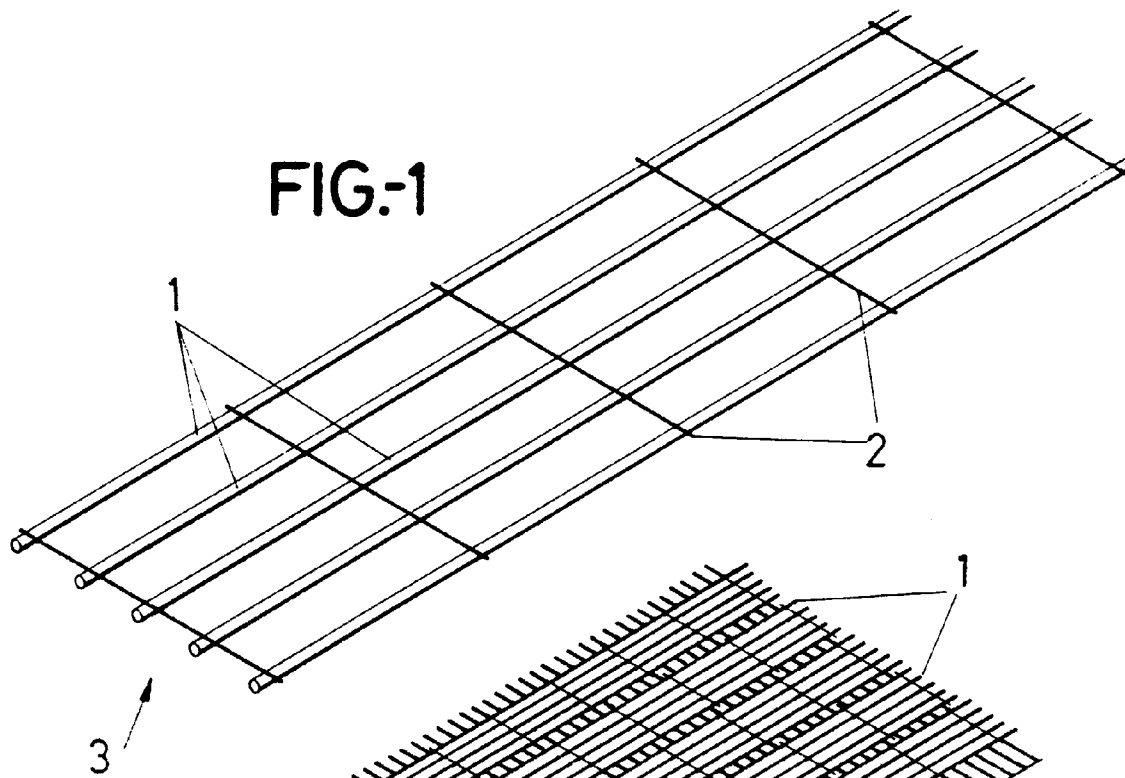


FIG-3

